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APPLICATION OF EDUCATIONAL FILMS IN PHYSICS IN THE FIRST YEAR OF HIGHER EDUCATIONAL INSTITUTIONS

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ABSTRACT

This article describes the methodology of teaching physics, which is one of the modern information technologies, using films on this topic during the lesson. In addition, the requirements for the films used are disclosed.

Keywords: highly qualified personnel, mass education, didactics, principles of didactics, educational films, requirements for educational films, electronic programs for creating educational films.

INTRODUCTION

The President of the Republic of Uzbekistan signed a decree , according to which in 2021–2023 the quality of school education in physics will be improved and the effectiveness of scientific research in this area will be ensured.

First of all, attention will be paid to the system of training, retraining and advanced training of personnel in the field of physics - we are talking, in particular, about school teachers in rural areas.

Over the next two years, 28 schools specializing in in-depth study of physics will be created in the regions, and classes with in-depth study of this subject will appear in 175 schools. A variable curriculum is being introduced, providing for more in-depth teaching of physics in secondary educational institutions. In specialized schools this subject will be taught 3 hours a week [1] .

“As history shows, physics served as the fundamental basis for almost all discoveries and technologies in the world. Indeed, without a deep understanding of the laws of physics, it is impossible to achieve results in such relevant areas and industries as mechanical engineering, electrical engineering, IT, water and energy saving technologies,” the head of state noted. Also developed electronic textbook on physics [2] .

In this regard, the training of highly qualified physics teachers is of great importance. In this regard, university teachers solve a two-pronged problem: firstly, it is necessary to fully convey to the student the physics course of the higher educational institution program, and secondly, to prepare teachers who are able to teach complex physical concepts to schoolchildren of different ages.

METHODOLOGY

As you know, learning is an integral function of society. Training is becoming widespread, and there is a need for scientific substantiation of this activity and the materials and means used for its implementation. These questions are solved by **didactics - the** science of learning and education. It includes goals, content, methods, means, learning outcomes.

The fundamental principles of didactics are the following:

– The principle of consciousness and activity.

– The principle of an individual approach.
– The principle of systematicity and consistency. The presentation of educational material is brought by the teacher to the level of consistency in the minds of students; knowledge is given in a certain sequence and they must be interrelated.
– The principle of strength in mastering knowledge, skills and abilities.
– The principle of connection between theory and practice.
– The principle of visibility. Expresses the need to form ideas and concepts based on sensory perceptions of objects and phenomena.
– The principle of accessibility lies in the need to match the content of the material, methods and forms of teaching to the level of development of students.
– The principle of science. The main goal of the principle is for students to understand that everything is subject to laws and that knowledge of them is necessary for everyone living in modern society. The proposed educational material must meet modern scientific achievements. These principles have not been developed recently; the effectiveness of their application is an indisputable fact. A comprehensive appeal to these principles throughout all educational work will help to remove the contradiction between the seeming fragmentation of knowledge and its inaccessibility to the "common" person. In addition, it should be taken into account that among schoolchildren there are students with different types of functioning of the cerebral hemispheres (physics and poetry). Consequently, the material for this stratum should be presented in the most accessible, visual and at the same time scientific way.
The application of the above principles of didactics makes it possible to eliminate the problem of excessive fragmentation of scientific knowledge. "Modern scientists pay attention to the fact that science is gradually losing the criteria of its truth, in particular, simplicity, that it is thereby divorced from the human essence and becomes understandable only to scientists themselves. The problem as a whole is aggravated by the growth of mutual misunderstanding within science, causing the "Tower of Babel effect" and putting science in danger of complete decoordination "[3].
In addition, "...the real result of the educational process should be considered teaching a person to use discursive-logical (left-hemisphere), intuitive (right-hemisphere) and holistic (based on the combined functioning of both hemispheres of the human brain with the involvement of all sensory channels) methods of thinking when solving various life, professional , social and other tasks" [4].
The implementation of this task is achieved by the use of information technology in the classroom, in particular, educational films. This question is most fully developed in the manual by M.V. Kirikova, V.P. Alekseev "Issues of methods of teaching physics" [5].
As for the capabilities and advantages of IT, the following can be noted:
–presentation of educational information in the most accessible form for students with the highest possible density of information flow for the educational process;
– acquaintance of students with phenomena that cannot be reproduced or are not available for direct observation;
– creating and developing students' interest in learning.

Any of the principles of didactics can be implemented in an educational film. It is educational films that, by creating a variety of visual and cognitive images, contribute to the emergence of broad scientific associations in the viewer.

RESULTS AND DISCUSSION

The scope of application of educational films is as follows:
– the need to familiarize students with the appearance of devices, machines, and the principles of their operation;
– the need to explain the structure of the object, its circuit diagram, design;
– when explaining the mechanism of natural processes, phenomena, and various devices.
The use of an educational film is necessary when the educational material is complex and difficult for students to master and is fundamental for mastering subsequent sections of the topic, as well as if it requires observation of the process in dynamics.
The basic pedagogical requirements for educational films contain 10 points, among them such as maintaining the leading role of the teacher in the lesson, as well as an organic combination of a scientific, logical approach to the material being studied, and an imaginative presentation of the content.
Among the main pedagogical requirements for illustrative screens and sound means, the authors include the following:
– disclosure of no more than one phenomenon in the textbook;
– mandatory disclosure of cause-and-effect relationships in film fragments;
– the duration of illustrative audio aids should be no more than 10-15 minutes and others.
Information technologies make it possible to optimally organize control and training, analogue training sessions.

CONCLUSION

In our opinion, the current development of information technology makes it possible to visualize educational films on various topics on the Internet, and this becomes possible in the classroom by projecting the film on the screen, showing it on a laptop, or viewing it on a phone. The availability of educational films does not exclude the need for a creative approach by a physics teacher to organizing the educational process. Firstly, it is not always possible to find a film online that reflects the program material. Secondly, the soundtrack may be in a foreign language or the film may not meet the length requirements. Thirdly, the film may not correspond to the level of training of the group (class).
In this case, the teacher must apply his skills in creating an educational film in compliance with all principles of didactics. Information technology provides ample opportunities to work with various programs in this area , such as Phet .
The use of this program allows you to create an educational film in the optimal time frame, taking into account the purpose of the lesson, the content of the educational material, the duration of the lesson, and the level of students' preparation.
The problem of the features and application of educational films in the process of teaching physics requires further research.

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